

## Subpart AA, Greenhouse Gas Reporting Program

*Under the Mandatory Reporting of Greenhouse Gases (GHGs) rule, owners or operators of facilities that produce pulp or paper (as defined below) and that emit 25,000 metric tons or more of GHGs per year (expressed as carbon dioxide equivalents but excluding biogenic carbon dioxide [CO<sub>2</sub>]) from pulp and paper manufacturing processes, stationary combustion, miscellaneous uses of carbonate, and other source categories (see information sheet on General Provisions) must report emissions. These sites must report emissions from pulp and paper processes and all source categories located at the facility for which calculation methods are defined in the rule. Owners and operators are required to collect emission data; calculate GHG emissions; and follow the specified procedures for quality assurance, missing data, recordkeeping, and reporting per the requirements of 40 CFR Part 98 Subpart AA – Pulp and Paper Manufacturing.*

## How Is This Source Category Defined?

This source category consists of facilities that produce market pulp (i.e., stand-alone pulp facilities), manufacture pulp and paper (i.e., integrated mills), produce paper products from purchased pulp, produce secondary fiber from recycled paper, convert paper into paperboard products (e.g., containers), or operate coating and laminating processes.

This source category consists of the following processes:

- Chemical recovery furnaces at kraft and soda mills (including recovery furnaces that burn spent pulping liquor produced by both the kraft and semichemical process).
- Chemical recovery combustion units at sulfite facilities.
- Chemical recovery combustion units at stand-alone semichemical facilities.
- Pulp mill lime kilns at kraft and soda facilities.
- Systems for adding makeup chemicals (calcium carbonate [CaCO<sub>3</sub>], sodium carbonate [Na<sub>2</sub>CO<sub>3</sub>]) in the chemical recovery areas of chemical pulp mills.

## What Greenhouse Gases Must Be Reported?

Pulp and paper manufacturing facilities must report:

- CO<sub>2</sub>, biogenic CO<sub>2</sub>, methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O) emissions from each kraft or soda chemical recovery furnace.
- CO<sub>2</sub>, biogenic CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O emissions from each sulfite chemical recovery unit.
- CO<sub>2</sub>, biogenic CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O emissions from each stand-alone semichemical chemical recovery combustion unit.
- CO<sub>2</sub>, biogenic CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O emissions from combustion of fossil fuels in each kraft or soda pulp mill lime kiln.
- CO<sub>2</sub> emissions from addition of makeup chemicals (CaCO<sub>3</sub>, Na<sub>2</sub>CO<sub>3</sub>) in the chemical recovery areas of chemical pulp mills.
- CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O combustion emissions from each stationary fuel combustion units. Calculate and report these emissions under subpart C of this part (General Stationary Fuel Combustion Sources) by following the requirements of subpart C.
- Facilities must also report GHG emissions from other source categories for which calculation methods are provided in other parts the rule, as applicable.

## How Must Greenhouse Gas Emissions Be Calculated?

Calculate GHG emissions as follows:

- Calculate CO<sub>2</sub> emissions from fossil fuels used in chemical recovery furnaces using direct measurement of fossil fuels consumed and default emission factors according to the Tier 1 methodology for stationary combustion sources in 40 CFR part 98, subpart C. Tiers 2 or 3 may be used to calculate fossil fuel-based CO<sub>2</sub> emissions if the respective monitoring and QA/QC requirements are met.
- Calculate biogenic CO<sub>2</sub> emissions from combustion of biomass in spent pulping liquor using:
  - Measured quantities of spent liquor solids fired, site-specific high heating value (HHV), and default or site-specific emission factors for each chemical recovery furnace located at kraft or soda facilities.
  - Measured quantities of spent liquor solids fired and the carbon content of the spent liquor solids for each chemical recovery unit at sulfite or stand-alone semichemical facilities.
- Calculate CH<sub>4</sub> and N<sub>2</sub>O emissions as the sum of emissions from the combustion of fossil fuels and the combustion of biomass in spent pulping liquor, as follows:
  - For fossil fuel emissions, use direct measurement of fuels consumed, a default HHV, and default emission factors according to the methodology for stationary combustion sources in 40 CFR 98.33(c).
  - For biomass emissions, use measured quantities of spent liquor solids fired, site-specific HHV, and default emission factors for kraft facilities.
- Calculate CO<sub>2</sub> emissions from the use of makeup chemicals using direct or indirect measurement of the quantity of chemicals added and ratios of the molecular weights of CO<sub>2</sub> and the makeup chemicals.
- Calculate CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O emissions from combustion of fossil fuels in lime kilns using direct measurement of fossil fuels consumed and default emission factors and heating values found in 40 CFR part 98, subpart C. Biogenic CO<sub>2</sub> from the conversion of CaCO<sub>3</sub> to CaO in kraft or soda pulp mill lime kilns is accounted for in the biogenic CO<sub>2</sub> emission factor for the recovery furnace.

A checklist for data that must be monitored is available at: <https://www.epa.gov/ghgreporting/subpart-aa-checklist>

## What Information Must Be Reported?

In addition to the information required by the General Provisions at 40 CFR 98.3(c), each annual report must include the following information:

- Annual CO<sub>2</sub>, biogenic CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O emissions for each chemical recovery unit and each lime kiln (metric tons per year).
- Annual quantity of fossil fuels for each chemical recovery furnace, combustion unit, and lime kiln (short tons for solid fuels, gallons for liquid fuels, and standard cubic feet for gaseous fuels).
- Default emission factor for CO<sub>2</sub>, CH<sub>4</sub>, or N<sub>2</sub>O, used in equation AA-1 of this subpart (kg CO<sub>2</sub>, CH<sub>4</sub>, or N<sub>2</sub>O per mmBtu).
- Annual quantity of spent liquor solids fired in each chemical recovery furnace and chemical recovery combustion unit, and the basis for determining the annual quantity of the spend liquor solids combusted. If an online measurement system is used, you must retain records of the

calculations used to determine the annual quantity of spent liquor solids combusted from the continuous measurements.

- High heat value of spent liquor solids (mmBtu per kilogram).
- Carbon content of spent liquor solids fired at sulfite and semichemical pulp facility (percent by weight, expressed as a decimal fraction).
- Annual steam purchases (pounds of steam per year).
- Annual quantities of makeup chemicals (carbonates) used (metric tons).
- Annual production of unbleached virgin chemical pulp produced (air dried metric tons). Sum of all kraft, semichemical, soda and sulfite pulp produced onsite, prior to bleaching. Do not include mechanical pulp or secondary fiber repulped for paper production in the virgin pulp production total.

For the current status of reporting requirements, including the list of data elements that are considered to be inputs to emissions equations, consult the following link:

<https://www.epa.gov/ghgreporting/confidential-business-information-ghg-reporting>

Facilities must enter required data into the electronic Greenhouse Gas Reporting Tool (e-GGRT) to be reported in the annual report, and must also enter into e-GGRT's *Inputs Verifier Tool* (IVT) the inputs to emission equations for which reporting is not required. IVT uses these entered data to calculate the equation results.

## **When and How Must Reports Be Submitted?**

Annual reports must be submitted by March 31 of each year, unless the 31st is a Saturday, Sunday, or federal holiday, in which case the reports are due on the next business day. Annual reports must be submitted electronically using [e-GGRT](#), the GHGRP's online reporting system. Additional information on setting up user accounts, registering a facility and submitting annual reports is available at <https://ccdsupport.com/confluence/>.

## **When Can a Facility Stop Reporting?**

There are several scenarios under which a facility may discontinue reporting. These scenarios are summarized in the [Subpart A Information Sheet](#) as well as in an [FAQ](#).

## **For More Information**

For additional information on Subpart AA, visit the [Subpart AA Resources](#) webpage. For additional information on the Greenhouse Gas Reporting Program, visit the [Greenhouse Gas Reporting Program Website](#), which includes information sheets on other rule subparts, [data](#) previously reported to the Greenhouse Gas Reporting Program, [training materials](#), and links to [frequently asked questions](#).

This document is provided solely for informational purposes. It does not provide legal advice, have legally binding effect, or expressly or implicitly create, expand, or limit any legal rights, obligations, responsibilities, expectations, or benefits in regard to any person. The series of information sheets is intended to assist reporting facilities/owners in understanding key provisions of the Greenhouse Gas Reporting Program.